

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of JoenBen BEVIRT et al.

Serial No.: Unassigned

Examiner: TBD

Confirmation No.: Unassigned

Art Unit: TBD

Filed: Herewith

For: **METHOD AND APPARATUS FOR PROVIDING AN INTERFACE
MECHANISM FOR A COMPUTER SIMULATION (As Amended)**

U.S. Patent and Trademark Office
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**INFORMATION DISCLOSURE STATEMENT
UNDER 37 C.F.R. §1.97(b)**

In accordance with the duty of disclosure set forth in 37 C.F.R. §1.56, Applicant(s) hereby submits the following information in conformance with 37 C.F.R. §§1.97 and 1.98.

- Pursuant to 37 C.F.R. §1.98, a copy of each document cited in the attached Form PTO/SB/08 is enclosed.
- No copies of the publications listed on the attached Form PTO/SB/08A are being provided pursuant to 37 C.F.R. §1.98(d) because the publications were previously cited by or submitted to the Office in prior Application Serial No. 09/448,536 to which the above-identified application claims priority under 35 U.S.C. §120.
- No copies of any U.S. patents or U.S. patent application publications listed on the attached Form PTO/SB/08A are being provided pursuant to 37 C.F.R. §1.98 because this application was filed after June 30, 2003.
- Publication(s) ____ listed on the attached Form PTO/SB/08A were cited in a foreign search or examination report corresponding to ____ application serial no. and mailed on ____.
- Enclosed is a copy of a non-English publication(s) _____. Pursuant to §609 of the M.P.E.P., Applicant submits the attached foreign search or examination report, which cites such non-English language publication(s).

- Enclosed is a copy of a non-English publication(s) ___. English language publication __ (copy enclosed) claims priority from this non-English publication.
- Enclosed is an explanation of non-English publication(s) __ for which an English translation is not available.
- Enclosed is an English translation of non-English publication(s) __ cited in the attached Form PTO/SB/08A.
- Enclosed is a copy of pending patent Application Serial Nos. _____ .

This Information Disclosure Statement is filed within any one of the following time periods:

- within three months from the filing date of this national application other than a CPA under 37 C.F.R. § 1.53(d);
- within three months from the date of entry of the national stage as set forth in 37 C.F.R. § 1.491 in this international application;
- before the mailing date of a first office action on the merits; or
- before the mailing of a first office action after the filing of a request for continued examination under 37 C.F.R. § 1.114.

It is respectfully requested that the Examiner consider the above-noted information and return an initialed copy of the attached Form PTO/SB/08A to the undersigned.

Dated: March 11, 2004

Respectfully submitted,
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By:



Erik B. Milch
Reg. No. 42,887

Please type a plus sign (+) inside this box → +

Substitute for form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(use as many sheets as necessary)</i>				Complete if Known	
				Application Number	Unassigned
				Filing Date	Herewith
				First Named Inventor	JoeBen BEVIRT
				Group Art Unit	Unassigned
				Examiner Name	Unassigned
Sheet	1	of	8	Attorney Docket Number	IMMR-081/02US

PTO/SB/08A (08-00)

U.S. PATENT DOCUMENTS					
Examiner Initials*	Cite No. ¹	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY
		Number	Kind Code ² (if known)		
	A1	6,323,837		Rosenberg	11/27/2001
	A2	6,246,390		Rosenberg	06/12/2001
	A3	6,193,519		Eggert et al.	02/2001
	A4	6,104,382		Martin et al.	08/15/2000
	A5	6,024,576		Bevirt et al.	02/2000
	A6	6,020,875		Moore et al.	02/01/2000
	A7	5,828,197		Martin et al.	10/27/1998
	A8	5,821,920		Rosenberg et al.	10/13/1998
	A9	5,816,105		Adelstein	10/06/1998
	A10	5,805,140		Rosenberg et al.	09/08/1998
	A11	5,790,108		Salcudean et al.	08/04/1998
	A12	5,785,630		Bobick, et al.	07/28/1998
	A13	5,769,640		Jacobus et al.	06/23/1998
	A14	5,767,839		Rosenberg	06/16/1998
	A15	5,766,016		Sinclair et al.	06/16/1998
	A16	5,755,577		Gillio	05/26/1998
	A17	5,742,278		Chen et al.	04/21/1998
	A18	5,739,811		Rosenberg et al.	04/14/1998
	A19	5,734,373		Rosenberg	03/31/1998
	A20	5,731,804		Rosenberg	03/1998
	A21	5,721,566		Rosenberg et al.	02/24/1998
	A22	5,694,013		Stewart et al.	12/02/1997
	A23	5,691,898		Rosenberg et al.	11/25/1997
	A24	5,666,473		Wallace	09/09/1997
	A25	5,666,138		Culver	09/09/1997
	A26	5,656,901		Kurita	08/12/1997
	A27	5,643,087		Marcus et al.	07/01/1997
	A28	5,642,469		Hannaford et al.	06/24/1997
	A29	5,629,594		Jacobus et al.	05/13/1997
	A30	5,625,576		Masie et al.	04/29/1997
	A31	5,623,582		Rosenberg	04/22/1997
	A32	5,591,924		Hilton	01/01/1997
	A33	5,589,854		Tsai	12/31/1996
	A34	5,589,828		Armstrong	12/31/1996
	A35	5,587,937		Massie et al.	12/24/1996
	A36	5,576,727		Rosenberg et al.	11/19/1996
	A37	5,570,111		Barrett et al.	10/29/1996
	A38	5,551,701		Bouton et al.	09/03/1996
	A39	5,547,382		Yamasaki et al.	08/20/1996
	A40	5,513,100		Parker et al.	04/30/1996
	A41	5,512,919		Araki	04/30/1996
	A42	5,491,477		Clark et al.	02/13/1996
	A43	5,482,051		Reddy et al.	01/09/1996
	A44	5,466,213		Hogan et al.	11/14/1995

¹ Unique citation designation number.

² See attached Kinds of U.S. Patent Documents.

Examiner Signature		Date Considered
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*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

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				Examiner Name	Unassigned
				Sheet	2

U.S. PATENT DOCUMENTS					
A45	5,459,382		Jacobus et al.	10/17/1995	
A46	5,451,924		Massimino et al.	09/19/1995	
A47	5,445,166		Taylor	08/29/1995	
A48	5,436,640		Reeves	07/25/1995	
A49	5,436,542		Petelin et al.	07/25/1995	
A50	5,429,140		Burdea et al.	07/04/1995	
A51	5,428,748		Davidson et al.	06/27/1995	
A52	5,414,337		Schuler	05/09/1995	
A53	5,412,880		Raab	05/09/1995	
A54	5,405,152		Katanics et al.	04/11/1995	
A55	5,402,582		Raab	04/04/1995	
A56	5,397,323		Taylor et al.	03/14/1995	
A57	5,396,267		Bouton	03/07/1995	
A58	5,396,266		Brimhall	03/07/1995	
A59	5,389,865		Jacobus et al.	02/14/1995	
A60	5,379,663		Hara	01/10/1995	
A61	5,351,692		Dow et al.	10/04/1994	
A62	5,334,027		Wherlock	08/02/1994	
A63	5,309,140		Everett, Jr., et al.	05/03/1994	
A64	5,299,810		Pierce et al.	04/05/1994	
A65	5,296,846		Ledley	03/22/1994	
A66	5,275,565		Moncrief	1/1994	
A67	5,275,174		Cook	1/1994	
A68	5,271,290		Fischer	12/21/1993	
A69	5,264,768		Gregory et al.	11/23/1993	
A70	5,251,127		Raab	10/05/1993	
A71	5,243,266		Kasagami et al.	09/07/1993	
A72	5,240,417		Smithson et al.	08/31/1993	
A73	5,230,623		Guthrie et al.	07/27/1993	
A74	5,228,356		Chuang	07/20/1993	
A75	5,223,776		Radke et al.	06/29/1993	
A76	5,220,260		Schuler	06/15/1993	
A77	5,212,473		Louis	05/18/1993	
A78	5,209,131		Baxter	05/11/1993	
A79	5,193,963		McAffee et al.	03/16/1993	
A80	5,186,629		Rohen	02/16/1993	
A81	5,185,561		Good et al.	02/09/1993	
A82	5,184,319		Kramer	02/02/1993	
A83	5,184,306		Erdman et al.	02/02/1993	
A84	5,182,557		Lang	01/26/1993	
A85	5,148,377		McDonald	09/15/1992	
A86	5,143,505		Burdea et al.	09/01/1992	
A87	5,142,931		Menahem	09/01/1992	
A88	5,126,948		Mitchell et al.	06/30/1992	
A89	5,116,051		Moncrief et al.	05/26/1992	
A90	5,107,080		Rosen	04/21/1992	
A91	5,103,404		McIntosh	04/07/1992	
A92	5,088,046		McMurtry	02/11/1992	
A93	5,078,152		Bond et al.	01/07/1992	
A94	5,072,361		Davis et al.	12/10/1991	
A95	5,050,608		Watanabe et al.	09/24/1991	
A96	5,044,956		Behensky et al.	09/03/1991	

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U.S. PATENT DOCUMENTS					
A97	5,040,306		McMurtry et al.		08/20/1991
A98	5,038,089		Szakaly		08/06/1991
A99	5,035,242		Franklin et al.		07/30/1991
A100	5,022,407		Horch et al.		06/11/1991
A101	5,019,761		Kraft		05/28/1991
A102	5,007,300		Siva		04/16/1991
A103	4,982,504		Soderberg et al.		01/08/1991
A104	4,962,448		DeMaio et al.		10/09/1990
A105	4,961,267		Herzog		10/09/1990
A106	4,961,138		Gorniak		10/02/1990
A107	4,961,038		MacMinn		10/02/1990
A108	4,945,501		Bell et al.		07/31/1990
A109	4,934,694		McIntosh		06/19/1990
A110	4,930,770		Baker		06/05/1990
A111	4,907,973		Hon		03/13/1990
A112	4,907,970		Meenen, Jr.		03/13/1990
A113	4,896,554		Culver		01/30/1990
A114	4,891,764		McIntosh		1/2/1990
A115	4,888,877		Enderle et al.		12/26/1989
A116	4,879,556		Duimel		11/07/1989
A117	4,837,650		Kawada		06/1989
A118	4,811,608		Hilton		03/14/1989
A119	4,803,413		Kendig et al.		02/07/1989
A120	4,800,721		Cemenska et al.		01/31/1989
A121	4,794,392		Selinko		12/27/1988
A122	4,791,934		Brunnett		12/20/1988
A123	4,775,289		Kazerooni		10/04/1988
A124	4,769,763		Trieb et al.		09/06/1988
A125	4,750,487		Zanetti		06/14/1988
A126	4,713,007		Alban		12/15/1987
A127	4,708,656		de Vries et al.		11/24/1987
A128	4,679,331		Koontz		07/14/1987
A129	4,676,002		Slocum		06/30/1987
A130	4,638,798		Shelden et al.		01/27/1987
A131	4,632,341		Repperger et al.		12/30/1989
A132	4,604,016		Joyce		08/05/1986
A133	4,599,070		Hladky et al.		07/08/1986
A134	4,581,491		Boothroyd		04/08/1986
A135	4,550,617		Fraignier et al.		11/05/1985
A136	4,513,235		Acklam et al.		04/23/1985
A137	4,477,043		Repperger		10/16/1984
A138	4,448,083		Hayashi		05/15/1984
A139	4,436,188		Jones		03/13/1984
A140	4,398,889		Lam et al.		08/16/1983
A141	4,391,282		Ando et al.		07/05/1983
A142	4,236,325		Hall et al.		12/02/1980
A143	4,216,467		Colston		08/05/1980
A144	4,160,508		Salisbury, Jr.		07/10/1979
A145	4,148,014		Burson		04/03/1979
A146	4,125,800		Jones		11/14/1978
A147	3,944,798		Eaton		03/16/1976
A148	3,919,691		Noll		11/11/1975

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U.S. PATENT DOCUMENTS					
A149	3,911,416		Feder	10/07/1975	
A150	3,903,614		Diamond et al.	09/09/1975	
A151	3,902,687		Hightower	09/02/1975	
A152	3,890,958		Fister et al.	06/24/1975	
A153	3,875,488		Crocker et al.	04/01/1975	
A154	3,795,150		Eckhardt	03/05/1974	
A155	3,623,064		Kagan	11/23/1971	
A156	3,517,446		Corlyon et al.	06/30/1970	
A157	3,497,668		Hirsch	02/24/1970	
A158	3,490,059		Paulsen et al.	01/13/1970	
A159	3,220,121		Cutler	11/30/1965	
A160	3,157,853		Hirsch	11/17/1964	
A161	2,906,179		Bower	09/29/1959	

FOREIGN PATENT DOCUMENTS					
Examiner Initials*	Cite No. ¹	Foreign Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY
		Office ¹	Number ²		
			Kind Code ³ (if known)		T ⁴
B1		0 349 086	A1	Stork Kwant B.V.	01/03/1990
B2		2 254 911	A		10/21/1992
B3		WO95/02233			01/19/1995
B4		WO95/02801			01/26/1995
B5		WO95/10080			04/13/1995
B6		WO95/20787			08/03/1995
B7		WO95/20788			08/03/1997
B8		WO95/32459			03/11/1995
B9		WO96/16397			05/30/1996
B10		WO96/22591			07/25/1996
B11		4-34610			02/05/1992
B12		WO94/26167			11/24/1994
B13		WO96/39944			12/19/1996
B14		WO94/00052			01/06/1994

¹ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3).

² For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document.

³ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible.

⁴ Applicant is to place a check mark here if English language Translation is attached.

Examiner Signature	Date Considered
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OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS					
Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.			T ²
	C1	Braigie, "Electric Control Loading – A Low Cost, High Performance Alternative," <i>Proceedings of Interservice/Industry Training Systems Conference</i> , pp. 247-254, November 6-8, 1990			
	C2	Iwata, "Pen-based Haptic Virtual Environment," 0-7803-1363-1/93 IEEE, pp. 287-292, 1993			
	C3	Russo, "The Design and Implementation of a Three Degree of Freedom Force Output Joystick," <i>MIT Libraries Archives</i> pp. 1-131, May 1990, archived 8/14/90			
	C4	Brooks et al., "Hand Controllers for Teleoperation - A State-of-the-Art Technology Survey and Evaluation," <i>JPL Publication 85-11</i> , NASA-CR-175890; N85-28559, pp. 1-84, 03/1/1985			
	C5	Jones et al., "A perceptual analysis of stiffness," ISSN 0014-4819 Springer International (Springer-Verlag); <i>Experimental Brain Research</i> , Vol. 79, No. 1, pp. 150-156, 1990			
	C6	Burdea et al., "Distributed Virtual Force Feedback, Lecture Notes for Workshop on Force Display in Virtual Environments and its Application to Robotic Teleoperation," <i>1993 IEEE International Conference on Robotics and Automation</i> , pp. 25-44, 05/02/1993			
	C7	Snow et al., "Model-X Force-Reflecting-Hand-Controller," NT Control No. NPO-17851; JPL Case No. 7348, pp. 1-4 with 45 pages of attachments, 06/15/1989			
	C8	Ouh-Young, "Force Display in Molecular Docking," Doctoral Dissertation, University of North Carolina at Chapel Hill, UMI Order No. 9034744, p. 1-369, 1990			
	C9	Tadros, "Control System Design for a Three Degree of Freedom Virtual Environment Simulator Using Motor/Brake Pair Actuators," <i>MIT Archive</i> , pp. 1-88, February 1990, archived 8/13/90			
	C10	Caldwell et al., "Enhanced Tactile Feedback (Tele-Taction) Using a Multi-Functional Sensory System," 1050-4729/93, pp. 955-960, 1993			
	C11	Adelstein et al., "Design and Implementation of a Force Reflecting Manipulandum for Manual Control research," DSC-Vol. 42, <i>Advances in Robotics</i> , pp. 1-12, 1992			
	C12	Gotow et al., "Controlled Impedance Test Apparatus for Studying Human Interpretation of Kinesthetic Feedback," WA11-11:00, pp. 332-337			
	C13	Stanley et al., "Computer Simulation of Interacting Dynamic Mechanical Systems Using Distributed Memory Parallel Processors," DSC-Vol. 42, <i>Advances in Robotics</i> , pp. 55-61, ASME 1992			
	C14	Russo, "Controlling Dissipative Magnetic Particle Brakes in Force Reflective Devices," DSC-Vol. 42, <i>Advances in Robotics</i> , pp. 63-70, ASME 1992			
	C15	Kontarinis et al., "Display of High-Frequency Tactile Information to Teleoperators," <i>Telemanipulator Technology and Space Telerobotics</i> , Won S. Kim, Editor, Proc. SPIE Vol. 2057, pp. 40-50, Sep. 7-9, 1993			
	C16	Patrick et al., "Design and Testing of A Non-reactive, Fingertip, Tactile Display for Interaction with Remote Environments," <i>Cooperative Intelligent Robotics in Space</i> , Rui J. deFigueiredo et al, Editor, Proc. SPIE Vol. 1387, pp. 215-222, 1990			
	C17	Adelstein, "A Virtual Environment System For The Study of Human Arm Tremor," <i>Ph.D. Dissertation</i> , Dept. of Mechanical Engineering, MIT, June 1989, archived 3/13/90			
	C18	Bejczy, "Sensors, Controls, and Man-Machine Interface for Advanced Teleoperation," <i>Science</i> , Vol. 208, No. 4450, pp. 1327-1335, 1980			
	C19	Bejczy et al., "Generalization of Bilateral Force-Reflecting Control of Manipulators," <i>Proceedings Of Fourth CISM-IFTOMM</i> , Sep. 8-12, 1981			
	C20	McAfee et al., "Teleoperator Subsystem/Telerobot Demonstrator: Force Reflecting Hand Controller Equipment Manual," <i>JPL 1988</i> , JPL D-5172			
	C21	Minsky, "Computational Haptics: The Sandpaper System for Synthesizing Texture for a Force-Feedback Display," <i>Ph.D. Dissertation</i> , MIT, June 1995, archived 7/6/95			
	C22	Jacobsen et al., "High Performance, Dextrous Telerobotic Manipulator With Force Reflection," <i>Intervention/ROV '91 Conference & Exposition</i> , Hollywood, Florida, May 21-23, 1991			
	C23	Shimoga, "Finger Force and Touch Feedback Issues in Dexterous Telemanipulation," <i>Proceedings of Fourth Annual Conference on Intelligent Robotic Systems for Space Exploration</i> , Rensselaer Polytechnic Institute, Sep. 30- Oct. 1, 1992			
	C24	IBM Technical Disclosure Bulletin, "Mouse Ball-Actuating Device With Force and Tactile Feedback," Vol. 32, No. 9B, February 1990			
	C25	Terry et al., "Tactile Feedback In A Computer Mouse," <i>Proceedings of Fourteenth Annual Northeast Bioengineering Conference</i> , University of New Hampshire, March 10-11, 1988			

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OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS					
C26	Howe, "A Force-Reflecting Teleoperated Hand System for the Study of Tactile Sensing in Precision Manipulation," <i>Proceedings of the 1992 IEEE International Conference on Robotics and Automation</i> , Nice, France, May 1992				
C27	Eberhardt et al., "OMAR - A Haptic display for speech perception by deaf and deaf-blind individuals," <i>IEEE Virtual Reality Annual International Symposium</i> , Seattle, WA, Sep. 18-22, 1993				
C28	Rabinowitz et al., "Multidimensional tactile displays: Identification of vibratory intensity, frequency, and contractor area," <i>Journal of The Acoustical Society of America</i> , Vol. 82, No. 4, October 1987				
C29	Bejczy et al., "Kinesthetic Coupling Between Operator and Remote Manipulator," <i>International Computer Technology Conference, The American Society of Mechanical Engineers</i> , San Francisco, CA, August 12-15, 1980				
C30	Bejczy et al., "A Laboratory Breadboard System For Dual-Arm Teleoperation," <i>SOAR '89 Workshop, JSC</i> , Houston, TX, July 25-27, 1989				
C31	Ouh young et al., "A Low-Cost Force Feedback Joystick and Its Use in PC Video Games," <i>IEEE Transactions on Consumer Electronics</i> , Vol. 41, No. 3, August 1995				
C32	Marcus, "Touch Feedback in Surgery," <i>Proceedings of Virtual Reality and Medicine The Cutting Edge</i> , Sep. 8-11, 1994				
C33	Bejczy, et al., "Universal Computer Control System (UCCS) For Space Telerobots," CH2413-3/87/0000/0318501.00 1987 IEEE, 1987				
C34	Jacobsen, S.C. et al., "High Performance, High Dexterity, Force Reflective Teleoperator II," ANS Topical Meeting on Robotics & Remote Systems, Albuquerque, New Mexico February 24-27, 1991, pp. 1-10				
C35	Kotoku, Tetsuo et al., "Environment Modeling for the Interactive Display (EMID) Used in Telerobotic Systems," IEEE November 3-5, 1991, pp. 99-1004				
C36	Bejczy, Antal K., "The Phantom Robot: Predictive Displays for Teleoperation with Time Delay," IEEE 1990, pp. 546-550				
C37	Buttolo, Pietro et al., "Pen-Based Force Display for Precision Manipulation in Virtual Environments," IEEE March 1995, pp. 1-8				
C38	Tan, Hong Z. et al., "Human Factors for the Design of Force-Reflecting Haptic Interfaces," Tan, Srinivasan, Eberman, & Chang, ASME WAM 1994, pp. 1-11				
C39	Ellis, R.E. et al., "Design and Evaluation of a High-Performance Prototype Planar Haptic Interface," ASME December 3, 1993, DSC-Vol. 49, pp. 55-64				
C40	Adelstein Bernard D. et al., "A High Performance Two Degree-of-Freedom Kinesthetic Interface," Massachusetts Institute of Technology 1992, pp. 108-112				
C41	Colgate, J. Edward et al., "Implementation of Stiff Virtual Walls in Force-Reflecting Interfaces, September 22, 1993				
C42	Iwata, Hiroo et al., "Volume Haptization, IEEE 1993, pp. 16-18				
C43	Fischer, Patrick et al., "Specification and Design of Input Devices for Teleoperation," 1990				
C44	Rosenberg, Louis B., "The Use of Virtual Fixtures as Perceptual Overlays to Enhance Operator Performance in Remote Environments," Air Force Material Command, September 1992, pp. 1-42				
C45	Rosenberg, Louis B., "The Use of Virtual Fixtures to Enhance Operator Performance in Time Delayed Teleoperation, Armstrong Laboratory, March 1993, pp. 1-45				
C46	Rosenberg, Louis B., "Perceptual Design of a Virtual Rigid Surface Contact," Center for Design Research Stanford University, Air Force Material Command, April 1993, pp. 1-41				
C47	Rosenberg, Louis, B. et al., "Perceptual Decomposition of Virtual Haptic Surfaces," IEEE, October 1993				
C48	Rosenberg, Louis B., "Virtual Fixtures as Tools to Enhance Operator Performance in Telepresence Environments," SPIE Telemannipulator Technology, 1993				
C49	Rosenberg, Louis B., "Virtual Haptic Overlays Enhance Performance in Telepresence Tasks," SPIE 1994				
C50	Burdea, Grigore et al., "Dexterous Telerobotics with Force Feedback-An Overview," Robotica 1991, Vol. 9				
C51	Yamakita, M. et al., "Tele-Virtual Reality of Dynamic Mechanical Model, IEEE July7-10, 1992, pp. 1103-1110				
C52	Ouh-young, Ming et al., "Force Display Performs Better than Visual Display in a Simple 6-D Docking Task," IEEE 1989, pp. 1462-1466				
C53	Hannaford, Blake et al., "Performance Evaluation of a Six-Axis Generalized Force-Reflecting Teleoperator," IEEE May/June 1991; Vol. 21, No. 3, pp. 620-633				
C54	Kim, Won S. et al., "A Teleoperation Training Simulator with Visual and Kinesthetic Force Virtual Reality,"				

Examiner Signature	Date Considered
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				Group Art Unit	Unassigned
				Examiner Name	Unassigned
Sheet	7	of	8	Attorney Docket Number	IMMR-081/02US

OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS					
C55	Burdea, Grigore et al., "A Portable Dextrous Master with Force Feedback," Presence: Teleoperators and Virtual Environments, MIT Press, June 1991				
C56	Fisher, S.S. et al., "Virtual Environment Display System," ACM Interactive 3D Graphics, October, 1986				
C57	"3D Human Interface Tool, Immersion Probe™, Immersion Human Interface Corporation 1994				
C58	Meyer, Kenneth et al., "A Survey of Position Trackers," The Massachusetts Institute of Technology 1992, Presence, Vol. 1, No. 2				
C59	Smith, Geoffrey, "Call It Palpable Progress," Business Week, October 9, 1995, p. 93, 96				
C60	Minsky, Margaret et al., "Feeling and Seeing: Issues in Force Display," ACM 1990, pp. 235-242				
C61	Herndon, J.N. et al., "The State-of-the-Art Model M-2 Maintenance System," Proceedings of the 1984 National Topical Meeting on Robotics and Remote Handling in Hostile Environments, American Nuclear Society, pp. 59-65				
C62	Batter, James J. et al., "Grope-1: A Computer Display to the Sense of Feel," pp. TA-4-188-TA-4-192				
C63	Gotow, J.K. et al., "Perception of Mechanical Properties at the Man-Machine Interface," IEEE 1987, pp. 688-689				
C64	Atkinson, William D. et al., "Computing with Feeling," Comput. & Graphics, Vol. 2, No. 2-E, pp. 97-103				
C65	Noll, A. Michael, "Man-Machine Tactile Communication Dissertation," Polytechnic Institute of Brooklyn, June 1971, pp. 1-88				
C66	Ouh-Young, Ming et al., "Using a Manipulator for Force Display in Molecular Docking," IEEE 1988, pp. 1824-1829				
C67	Wiker, Steven F. et al., "Development of Tactile Mice for Blind Access to Computers: Importance of Stimulation Locus, Object Size, and Vibrotactile Display Resolution," Proceedings of the Human Factors Society 35 th Annual Meeting 1991, pp. 708-712				
C68	Tavkhelidze, D.S., "Kinematic Analysis of Five-Link Spherical Mechanisms," Mechanism and Machine Theory 1974, Vol. 9, pp. 181-190				
C69	Adachi, Yoshitaka et al., "Sensory Evaluation of Virtual Haptic Push-Buttons," Technical Research Center, Suzuki Motor Corporation, November 1994				
C70	Tan, Hong Z. et al., "Manual Resolution of Compliance When Work and Force Cues are Minimized," ASME 1993, DSC-Vol. 49, pp. 99-104				
C71	Kotoku, Tetsuo, "A Predictive Display with Force Feedback and its Application to Remote Manipulation System with Transmission Time Display," IEEE 1992, July 7-10, 1992, pp. 239-246				
C72	Howe, Robert D., "Task Performance with a Dextrous Teleoperated Hand System," Proceedings of SPIE, November 1992, Vol. 1833, pp. 1-9				
C73	Snow, E. et al., "Compact Force-Reflecting Hand Controller," JPL, April 1991, Vol. 15, No. 3, Item No. 153, pp. 1-15a				
C74	Schmult, Brian et al., "Application Areas for a Force-Feedback Joystick," ASME 1993, DSC-Vol. 49, pp. 47-54				
C75	Hasser, Christopher John, "Tactile Feedback for a Force-Reflecting Haptic Display," The School of Engineering, University of Dayton, December 1995, pp. iii-xii & 1-96				
C76	Rosenberg, L.B., "Commercially Viable Force Feedback Controller for Individuals with Neuromotor Disabilities," United States Air Force Armstrong Laboratory, May, 1996				
C77	Rosenberg, Louis, Ph.D., "Using Force Feedback to Enhance Human Performance in Graphical User Interface," 4/96				
C78	Repperger, D.W., "Active Force Reflection Devices in Teleoperation," IEEE Control Systems				
C79	Winey, III, Calvin McCoy, "Computer Simulated Visual and Tactile Feedback as an Aid to Manipulator and Vehicle Control," Master of Science in Mechanical Engineering, Massachusetts Institute of Technology, 1981				
C80	Kilpatrick, Paul, "The Use of a Kinesthetic Supplement in an Interactive Graphics System," Univ. of North Carolina at Chapel Hill, 1976, pp. 1-175				
C81	Ramstein, Christophe, "Combining Haptic and Braille Technologies: Design Issues and Pilot Study," ASSETS '96, 2 nd Annual ACM Conf. On Assistive Technologies, ACM SIGGRAPH, April 1996, pp. 37-44				
C82	Iwata, Hiroo, "Artificial Reality with Force-feedback: Development of Desktop Virtual Space with Compact Master Manipulator," Computer Graphics, Vol. 24, No. 4, Aug. 1990, pp. 165-170				
C83	Payette et al., "Evaluation of a Force Feedback (Haptic) Computer Pointing Device in Zero Gravity," DSC-Vol. 58, Proceedings of the ASME Dynamics Systems and Control Division, ASME 1996, pp. 547-553				

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Sheet	8	of	8	Attorney Docket Number	IMMR-081/02US

OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS		
C84	Hirota, Koichi, "Development of Surface Display," IEEE 0-7803-1363, 1993, pp. 256-262	
C85	Bostrom, M. et al., "Design of An Interactive Lumbar Puncture Simulator With Tactile Feedback," IEEE 0-7803-1363, 1993, pp. 280-286	
C86	Yokohoji, Y. et al., "What you Can See is What You Can Feel – Development of a Visual/Haptic Interface to Virtual Environment," Proceedings of VRAIS '96, IEEE 1996, pp. 46-54	
C87	Ramstein, Christophe, "The Pantograph: A Large Workspace Haptic Device for a Multimodal Human-Computer Interaction," Computer-Human Interaction, CHI 1994	
C88	Millman, P. et al, "Design of a Four Degree-of-Freedom Force-Reflecting Manipulandum with a Specified Force/Torque Workspace," Proc. of 1991 IEEE Int'l Conf. On Robotics and Automation, IEEE CH2969-4, 1991, pp. 1488-1493	
C89	Hayward, V. et al., "Design and Multi-Objective Optimization of a Linkage for a Haptic Interface," Advances in Robot Kinematics and Computationed Geometry, 1994, pp. 359-368	
C90	Stone, R. et al, "Virtual Environment Training Systems for Laparoscopic Surgery," The Journal of Medicine and Virtual Reality, 1995, pp. 42-51	

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